

REMARKS

Claims 1-24 are pending in the Application. Claims 1, 15, 16 and 20 are amended by the present Amendment. The specific changes to the claims are shown in the Appendix entitled VERSION WITH MARKINGS TO SHOW CHANGES MADE TO THE CLAIMS that follows the signature page of this Amendment. In the Appendix, insertions are underlined and deletions are enclosed in brackets.

I. THE CLAIMS ARE NOT INDEFINITE

A. Rejection of Claims 15 and 16 under 35 U.S.C. 112

In section 4 of the Office Action, claims 15 and 16 were rejected under 35 U.S.C. 112, second paragraph for the reasons stated in section 8 of the Office Action dated April 25, 2002 (First Office Action). In section 8 of the First Office Action, it was asserted that claims 15 and 16 are indefinite because of their use of the term "grid-like."

Claims 15 and 16 have been amended to more clearly point out and distinctly claim the subject matter of the invention. Claim 15 now recites that at least one of the surfaces of the duroplastic foam and soundproofing layers is formed with a pattern of convex bulges as described in the specification at page 7, lines 27-31. Claim 16 now recites that this pattern of convex bulges may be in the form of a grid. The term "grid-like" has been eliminated from the claims.

The Applicant respectfully submits that amended claims 15 and 16 are not indefinite. The Applicant therefore submits that the rejection of claims 15 and 16 under 35 U.S.C. 112, second paragraph should be withdrawn.

II. THE CLAIMS ARE PATENTABLE OVER THE CITED ART

A. Rejection of Claims 1, 13, 17-22 and 24 under 35 U.S.C. 102(e) or 25. U.S.C. 103(a)

In section 5 of the Office Action, claims 1, 13, 17-22 and 24 were rejected under 35 U.S.C. 102(e) as being assertedly anticipated by Alts, U.S. Patent 6,145,617 ("Alts Patent") or, in the alternative as obvious in view of the Alts Patent. The Applicant respectfully traverses this rejection.

1. Claim 1

Claim 1 of the Application has been amended to more clearly point out and distinctly claim the subject matter of the invention. As amended, claim 1 of the Application recites a heat-insulating and soundproofing lining for attachment to a surface in an engine compartment of a motor vehicle. The heat-insulating and soundproofing lining comprises a first covering layer adapted for exposure to an engine compartment thermal environment and a duroplastic foam layer in planar contact with the first covering layer. The duroplastic foam layer has a long-term thermal loadability at 200°C of three weeks. The heat-insulating and soundproofing lining further comprises a soundproofing layer in planar contact with the duroplastic foam layer, and a second covering layer in planar contact with the soundproofing layer and adapted for planar contact with the surface.

2. The Alts Patent

The Alts Patent is directed to a sound-insulating kit for installation in motor vehicles. Alts Patent, Abstract. The Alts Patent discloses a series of embodiments for the sound insulating kit, all of which have certain features in common. Each kit embodiment comprises an assembly package 42 for application to a substrate 11 as shown in Figures 4, 5 and 8-11 of the Alts Patent. All of these embodiments include "by necessity" a porous spring layer 13 and a microporous

stiffening layer 14. Alts Patent, col. 3, line 63 to col. 4, line 12. All of the embodiments also include an air layer 25 which is said to be “[e]ssential to the acoustic effectiveness of the multifunctional kit 41 . . .” Id.

The porous spring layer 13 is preferably formed from an open-pored foam layer. Alts Patent, col. 3, line 65-66. The porous spring layer may be a thermomoulded foam, a PU moulded foam, or a duroplastic mixed fibre fleece. Alts patent, col. 6, lines 17-21.

The features of the microporous stiffening layer are varied depending on the usage of the particular embodiment. In the embodiments of Figures 4 and 5, the microporous stiffening layer consists preferably of an open-pored fibre layer or fibre/foam composite layer with specified total airflow resistance and areal-mass characteristics. Alts Patent, col. 3, line 66 to col. 4, line 5. In the embodiments of Figures 8 and 10, the microporous stiffening layer is formed from pressed fibre material. Alts Patent, col. 5, lines 10-13 and col. 6, lines 12-16.

The kit embodiments of Figures 10 and 11 are identified as usable on the “outer end wall covering” of the vehicle. Alts Patent, col. 6, lines 8-10 and 28-31. The Figure 10 and 11 embodiments each comprise on the side of the motor space a dirt-resistant protective layer 28, in particular an oil and water resistant protective fleece. Alts Patent, col. 6, lines 9-12.

Although the Alts Patent notes that there may be some thermal insulating value in its disclosed soundproofing kit because of the use of a low conductivity material in the spring layer (see col. 6, lines 46-51), it is clear that the disclosed materials and layer configurations are established based on acoustic damping properties. Moreover, the Alts Patent does not address the protection of the soundproofing layer(s) of the kit from thermal degradation through the use of outer layers tailored for exposure to a thermal environment.

3. The Alts Patent Does Not Disclose the Features of Claim 1

The Applicant respectfully submits that the Alts Patent does not disclose the features of claim 1. Specifically, the Alts Patent does not disclose a heat-insulating and soundproofing lining that comprises a first covering layer adapted for exposure to an engine compartment thermal environment, a duroplastic foam layer in planar contact with the first covering layer, a soundproofing layer in planar contact with the duroplastic foam layer, and a second covering layer in planar contact with the soundproofing layer and adapted for planar contact with the surface.

(a) The Alts Patent does not teach, disclose or suggest
the layer configuration of claim 1

The Applicant notes that claim 1 provides a specific ordering of layers relative to a substrate to which the claimed lining may be applied. In addition, each layer of the lining is in planar contact with adjacent layers and the second covering layer is adapted for planar contact with the substrate to which the lining will be applied. The Alts Patent does not disclose or suggest a soundproofing kit with the claimed configuration. At most, the Alts patent discloses a series of soundproofing kit embodiments, each having a plurality of layers tailored and ordered based on their specific application. As discussed below, even if the nearest Alts analogs to the claimed lining features are substituted for individual layers of claim 1, the Alts patent still does not suggest the claimed configuration. Moreover, the soundproofing kits of the Alts Patent are required to have an air layer somewhere between the soundproofing layers and the substrate.

The lining of claim 1 does not have an air layer and, in fact, precludes the presence of an air layer between the recited layers and between the lining and the substrate. In contrast, the soundproofing kit embodiments of the Alts Patent and the disclosed "conventional" embodiment of Alts Figure 1 all include an air layer between the soundproofing "assembly package" and the

substrate to which the soundproofing kit is applied. This air layer is specifically said to be "essential" to the effectiveness of the kit. Alts Patent, col. 4, lines 6-8. In some embodiments (e.g., Alts Patent Figures 1 and 9), the air layer is formed between layers of the soundproofing system. In other embodiments (e.g., Alts Patent Figures 4, 5, 8, 10 and 11), the soundproofing system is configured to form an air layer between the soundproofing system and the substrate when installed on the substrate.

Because the insulating and soundproofing lining of claim 1 does not include an element essential to the disclosed embodiments of the Alts Patents, these embodiments cannot be said to teach or disclose the claimed invention. Indeed, the fact that this element is said to be essential actually teaches away from the layer configuration of claim 1.

Even aside from the lack of an air layer, the lining of claim 1 has a layer configuration that is distinguishable from the embodiments disclosed in the Alts Patent. As discussed above, the soundproofing layer of the Alts kit is actually a combination of a foam layer and a microporous stiffening layer. In contrast, the soundproofing layer recited in claim 1 is distinct from the duroplastic foam layer. The Applicant thus submits that the form and function of the microporous stiffening layer of the Alts Patent is distinguishable from the soundproofing layer of claim 1. However, even if it is assumed that the Alts porous spring layer is analogous to the duroplastic foam layer of claim 1 and the Alts microporous stiffening layer is analogous to the soundproofing layer of claim 1, the lining configuration of claim 1 is still distinguishable from each of the soundproofing kit embodiments of the Alts Patent.

For example, the embodiments of Alts Patent Figures 4, 5 and 8-10 are readily distinguishable from the recited configuration of claim 1 because the stiffening (i.e., soundproofing) layer is positioned between the spring (i.e., foam) layer and the exposed surface

of the kit. The Applicant notes that this relative orientation of the foam layer and the soundproofing layer would render the foam layer ineffective in protecting the soundproofing layer from thermal degradation. The embodiments of Figures 4, 5 and 9 are further distinguishable by the lack of any layer analogous to the second covering material of claim 1.

The embodiment of Figure 11 is distinguishable by the lack of a second covering layer and by the fact that the foam layer is not in planar contact with a first covering layer (assuming for the sake of this argument only that the protective layer 28 of Figure 11 is analogous to the first covering layer of claim 1).

The Applicant thus submits that the Alts Patent does not disclose or suggest the layer configuration of claim 1. The Applicant further submits that it would be impermissible hindsight to use the configuration of claim 1 as a blueprint for constructing an insulating and soundproofing lining using layers and materials from disparate embodiments of the Alts Patent.

- (b) The Alts Patent does not teach, disclose or suggest the features of the duroplastic foam layer of claim 1

The Alts Patent does not disclose a soundproofing kit having a duroplastic foam layer with a long-term thermal loadability at 200°C of three weeks. This fact was recognized by the Examiner in the second paragraph of section 5 of the present Office Action. However, it was asserted by the Examiner in that same paragraph that it can be presumed that a similar property would be inherent in the Alts Patent. The Applicant respectfully disagrees with this assertion.

The Applicants submit that it cannot be presumed that the thermal characteristics of the spring layer materials disclosed in the Alts Patent are inherently similar to the duroplastic foam layer of claim 1. As an initial matter, the Alts Patent does not disclose the use of a duroplastic foam. The Alts Patent passage cited in the Office Action notes that materials for the spring layer of the Alts soundproofing kit may include a 15 mm thick thermomoulded foam with an area-

weight of approx. 0.3 kg/m^2 , a 15 mm thick PU moulded foam with an area-weight of approx. 0.6 kg/m^2 to 0.9 kg/m^2 or a 15 mm thick duroplastic mixed fibre fleece with an area-weight of approx. 0.7 kg/m^2 to 1.0 kg/m^2 . Alts Patent, col. 6, lines 16-23. Based on these area densities and a 15 mm thickness, the bulk densities of the spring layer materials range from 20 kg/m^3 to 67 kg/m^3 .

By contrast, the duroplastic foam layer of the example embodiment of the present Application is a 3 mm thick layer having a density of only 10 kg/m^3 . Application, page 9, lines 22, 23. Thus, the least dense of the Alts materials is still twice the density of the exemplary duroplastic foam of the present invention. While density is only one factor in thermal characterization, it is a significant indicator that the duroplastic foam layer of claim 1 would have different thermal characteristics from the materials disclosed in the Alts Patent.

Given the significant difference in density and thickness of the duroplastic foam layer from the densities and thicknesses of the spring layer materials of the Alts Patent, along with the lack of focus on thermal characteristics in the Alts Patent, the Applicant submits that it is clearly improper to presume that the thermal characteristics of the Alts spring layer materials would inherently have the recited long-term thermal loadability at 200°C of three weeks.

- (c) The Alts Patent does not teach, disclose or suggest the features of the first protective layer

The Alts Patent does not teach, disclose or suggest the use of outer protective layers to protect the soundproofing layers from thermal degradation. At most, there is a suggestion that the soundproofing layers (more specifically, the foam spring layer) of the Alts kit provide thermal insulation for the substrate. There is simply no recognition in the Alts Patent of the problem of thermal degradation of the soundproofing layer itself or of the possibility of using

outer layers to insulate inner layers of the kit. In contrast, the lining of claim 1 includes an outer covering that is specifically tailored for exposure to a thermal environment.

In the embodiment of Figure 10 of the Alts Patent, the soundproofing kit does include a protective layer 28. Alts Patent, col. 6, lines 10-12. This protective layer is said to be an oil and water resistant protective fleece. *Id.* There is no suggestion, however, that this fleece layer is tailored to a thermal environment.

(d) Conclusion

The Alts Patent does not teach, disclose or suggest an insulating and soundproofing lining having the recited layer configuration and, in fact, teaches away from such linings by noting that an air layer is an essential element in its soundproofing kits. Further, the Alts Patent does not disclose the characteristics of the duroplastic foam layer or the first protecting layer.

For at least these reasons, the Applicant respectfully submits that the rejection of claim 1 under 35 U.S.C. 102(e) or, in the alternative, 35 U.S.C. 103(a) should be withdrawn.

4. Claims 13 and 17-19

Claims 13 and 17-19 are dependent on claim 1, which has been shown to be patentable over the Alts Patent. Because claims 13 and 17-19 include all of the features of claim 1, the Applicant submits that claims 13 and 17-19 are also patentable over the Alts Patent.

With respect to claim 17, the Applicant also submits that there is no disclosure or suggestion in the Alts Patent of a soundproofing kit having a metal foil in planar contact with an outer covering layer. The embodiment of Figure 9 of the Alts Patent includes a thin PU-foil 27 for protection against damp and contamination. Alts Patent, col. 5, lines 52-54. As shown in Figure 9, this foil is disposed between the underside of the kit assembly package 42 and the substrate. This foil is not exposed to an engine compartment thermal environment and there is

no suggestion that it could be so-used. Clearly it is not analogous to the protective metal foil of claim 17.

For at least the above reasons, the Applicant submits that the rejection of claims 13 and 17-19 under 35 U.S.C. 102(e) or, in the alternative, 35 U.S.C. 103(a) should be withdrawn.

5. The Alts Patent Does Not Disclose the Features of Claim 20

Claim 20 of the Application recites a method for manufacturing a heat-insulating and soundproofing lining for attachment to a surface in an engine compartment of a motor vehicle. The method comprises providing a first covering layer adapted for exposure to an engine compartment thermal environment; providing a duroplastic foam layer in planar contact on the first covering layer, wherein the duroplastic foam layer has a long-term thermal loadability at 200°C of three weeks; providing a soundproofing layer on the first covering layer; providing a second covering layer adapted for planar contact with the surface in the engine compartment; and pressing the layers together at an increased temperature and an increased pressure.

The Applicant respectfully submits that the Alts Patent does not disclose the features of claim 20. As discussed in detail above, the Alts Patent does not disclose or suggest a heat-insulating and soundproofing lining adapted for exposure to an engine compartment thermal environment. Further, the Alts Patent does not disclose a lining having a duroplastic foam layer in planar contact with the first covering layer wherein the duroplastic foam layer has a long-term thermal loadability at 200°C of three weeks. Moreover, the Alts Patent does not disclose a method of manufacturing an insulating and soundproofing lining by providing such a first covering layer and duroplastic foam layer along with a soundproofing layer in planar contact with the duroplastic foam layer and a second covering layer in planar contact with the soundproofing layer, and, pressing the layers together at an increased temperature.

For at least the reasons presented above with respect to claim 1, the Applicant submits that claim 20 is patentable over the Alts Patent. The Applicant therefore respectfully requests that the rejection of claim 20 under 35 U.S.C. 102(e) or, in the alternative, under 35 U.S.C. 103(a) be withdrawn.

6. Claims 21, 22 and 24

Claims 21, 22 and 24 are dependent on claim 20, which has been shown to be patentable over the Alts Patent. Because claims 21, 22 and 24 include all of the features of claim 20, the Applicant submits that claims 21, 22 and 24 are also patentable over the Alts Patent. The Applicant therefore requests that the rejection of claims 21, 22 and 24 under 35 U.S.C. 102(e) or, in the alternative, under 35 U.S.C. 103(a) be withdrawn.

B. Rejection of Claims 2-12, 14-16 and 23 under 35 U.S.C. 103(a)

In section 6 of the Office Action, claims 2-12, 14-16 and 23 were rejected under 35 U.S.C. 102(e) as being assertedly obvious in view of the Alts Patent. The Applicant respectfully traverses this rejection.

Claims 2-12 and 14-16 are dependent on claim 1, and claim 23 is dependent on claim 20. Both claims 1 and 20 have been shown to be patentable over the Alts Patent. The Applicant submits that, by virtue of their dependency, claims 2-12, 14-16 and 23 are also patentable over the Alts Patent. For at least this reason, the Applicant submits that the rejection of claims 2-12, 14-16 and 23 under 35 U.S.C. 103(a) should be withdrawn.

IV. CONCLUSION

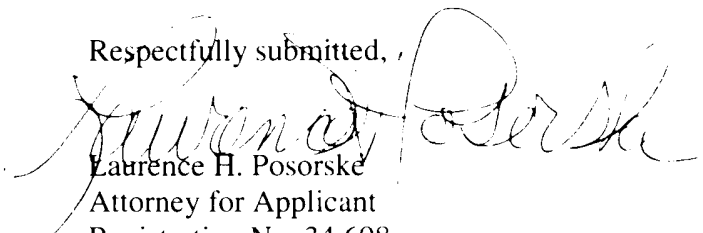
For at least the reasons stated above, the Applicant submits that pending claims 1-24 are in condition for allowance. The Applicant therefore requests that the Application be allowed and

Serial No.: 10/006,042

Attorney Docket No. 62673.000002
(formerly 031683.002575US)

passed to issue. Should the Examiner believe anything further is desirable in order to place the Application in even better condition for allowance, the Examiner is invited to contact the Applicant's undersigned representative.

Respectfully submitted, ,



Laurence H. Posorske

Attorney for Applicant

Registration No. 34,698

Telephone: (804) 788-8762

Facsimile: (804) 788-8218

**APPENDIX: VERSION WITH MARKINGS TO SHOW CHANGES
MADE TO THE CLAIMS**

In the Claims

Claim 1 was amended as follows:

1. A heat-insulating and soundproofing lining for [the] attachment to a surface in an engine compartment of a motor vehicle, comprising:

a first covering layer adapted for exposure to an engine compartment thermal environment;

a duroplastic foam layer in planar contact with the first covering layer, wherein the duroplastic foam layer has a long-term thermal loadability at 200°C of three weeks;

a soundproofing layer in planar contact with the duroplastic foam layer, wherein the soundproofing layer is selected from the group consisting of plastic foam, particle composite foam, and a non woven fabric wherein the non woven fabric consists of at least one of natural fibers and synthetic fibers; and

a second covering layer in planar contact with the soundproofing layer and adapted for planar contact with the surface.

Claim 15 was amended as follows:

15. The heat-insulating and soundproofing lining of claim 1, wherein at least one surface of at least one of the duroplastic foam layer and the soundproofing layer is formed with a pattern of convex bulges [has a grid-like shaping].

Claim 16 was amended as follows:

16. The heat-insulating and soundproofing lining of claim 1, wherein the pattern of convex bulges is formed as a grid [grid-like shaping is near a boundary surface of the at least one layer].

Claim 20 was amended as follows:

20. A method for manufacturing a heat-insulating and soundproofing lining for [the] attachment to a surface in an engine compartment of a motor vehicle, comprising:

providing a first covering layer;
providing a duroplastic foam layer in planar contact on the first covering layer,
wherein the duroplastic foam layer has a long-term thermal loadability at 200°C of three weeks;
providing a soundproofing layer on the first covering layer
providing a second covering layer adapted for planar contact with the surface in
the engine compartment;
pressing the layers together at an increased temperature and an increased pressure.